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ABSTRACT

As a part of a Title III project, a program was initiated to provide disadvantaged kindergarten children with planned perceptual-motor training exercises. This study investigates the effects of that program on the perceptual development and academic readiness of a group of 76 such children. The exercises, derived from the Kephart developmental program, were used for half of each school day, over a period of seven months. A control group (N=26) participated in a conventional kindergarten program. All the children were pre- and posttested on the Slosson Intelligence Test, and posttested on the Metropolitan Readiness Tests Form A, Frostig's Developmental Test of Visual Perception, and Kephart's Purdue Perceptual-Motor Survey. Results uncovered no significant gain score differences between groups on the SIT. Mean posttest differences on the Metropolitan Readiness Tests were significant, favoring the experimental group. The Kephart Survey revealed no significant between-group differences. These results were interpreted as suggesting that the program was more effective at improving fine motor behaviors than gross motor behaviors. Fine motor behaviors correlate highly with successful reading and writing activities. Intensive exposure to verbal concepts, paired with concrete examples and movement, may have been a major program effect. (MH)

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THE EFFECT OF A PERCEPTUAL-MOTOR TRAINING PROGRAM UPON THE READINESS AND PERCEPTUAL DEVELOPMENT OF CULTURALLY DISADVANTAGED KINDERGARTEN CHILDREN[1]

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This study investigated the effect of a perceptual-motor training program upon the academic readiness of culturally disadvantaged kindergarten children. The program reported was part of a Title III project which emphasized prevention, as well as remediation, of learning problems during the kindergarten years and in the primary grades. A survey of the school population under study indicated that the incidence of learning disorders in the primary grades was approximately four times greater than expected in the general population. It was believed that such a high incidence of learning problems could be reduced if children, beginning at the kindergarten level, received intensive instruction which was designed to upgrade developmental characteristics which have been associated with learning disorders. For example, Kephart (1960) demonstrated that perceptual-motor deficits underlay many of the learning disorders that were observed in his clinic, and he found that perceptual-motor training can ameliorate these problems. It was hypothesized that a perceptual-motor training program, based upon Kephart's training procedures, would reduce the incidence of learning disorders in the rank and file of culturally disadvantaged children by overcoming minimal developmental deficiencies before such deficiencies could exert an inhibiting effect on learning or school progress. Therefore, groups of these children were given this type of training on every school-day throughout their entire year in kindergarten.

No attempt was made to select children in terms of the presence or absence of learning disorders, since it was assumed that the perceptual-motor training program would benefit all children, regardless of their initial level of readiness for school.

METHOD

Subjects and Procedure

Four entering kindergarten classes were randomly selected for the 1968-1969 school year. These classes were chosen from public schools located in an economically disadvantaged area where the median annual income of residents is approximately $3,000. The population of this area is almost 100 percent Negro, and all subjects included in the experimental and control groups were Negro children. The Control Group (N=26) consisted of children who received no perceptual-motor training during the school year, Experimental Group I (N=50), composed of two entire classes, participated in activities derived from the Kephart perceptual-motor program (Kephart, 1960) for approximately two hours per day throughout the entire year, and Experimental Group II (N=26) was composed of children who began the perceptual-motor program in the middle of the school year and continued receiving the training until the end of the school year.

The perceptual-motor training program for both experimental groups was conducted by two physical education teachers who attended the

Achievement Center for Children, Purdue University, during the summer of 1968 where they participated in an intensive training course which provided them with information about the Kephart techniques. During the school year these teachers gave the experimental groups exercises which stressed the development of balance and posture, locomotion, contact, receit and propulsion, body image, laterality and perceptual-motor match.

Evaluative Instruments

The subjects received the following tests during their year in kindergarten:

(1) Slosson Intelligence Test--administered during both October of 1968 and May of 1969.

(2) Metropolitan Readiness Tests, Form A--administered during May of 1969.

(3) Frostig's Developmental Test of Visual Perception--administered during May of 1969.

(4) Kephart's Purdue Perceptual-Motor Survey--administered during May of 1969.

These tests were administered because it was assumed that the facilitating effects of the perceptual-motor training program would be demonstrated by increased general aptitude as measured by the SIT; improved readiness for first grade school work which would be indicated by better

performance on the MRT by the experimental groups than by the control group; and improvement in the experimental groups' perceptual-motor coordination as measured by the Frostig and Kephart tests.

RESULTS

(1) Slosson Intelligence Test: A Multiple Linear Regression Analysis (Bottenberg and Ward, 1963) showed that significant ($P<.01$) pre to post-test IQ changes occurred in these scores, since the obtained F was 38.78 (df=1/149). Table One presents the mean IQ scores for the three groups in both the pre and post-test conditions.

	Experimental Group I	Experimental Group II	Control Group
Mean Pre-test IQ's	94	90	88
Mean Post-test IQ's	100	98	94

Table One: Pre and post-test SIT IQ scores for the experimental and control groups.

(2) Metropolitan Readiness Test: An analysis of variance of the three groups' raw scores obtained in May revealed a significant F of 38.35 (df=2/94, $P<.01$). These mean scores were 67.10 and 71.71 for EI and EII and 42.92 for the Control Group. In order to demonstrate the relative

differences between these mean scores, their percentile equivalents were compared in the percentile rank table given by Hildreth, et. al. (1969). Thus, the respective percentile equivalents for the means of EI, EII and the Control Group were 75, 83 and 27.

(3) Developmental Test of Visual Perception: An analysis of variance of the Frostig tests administered in May yielded no significant differences between the groups. Thus, Experimental Group I obtained a mean Perceptual Quotient of 99.74, while the averages for EII and the Control Group were 94.40 and 99.61.

(4) Purdue Perceptual-Motor Survey: The scores obtained in May on the balance and posture, body image and differentiation, ocular control and form perception subtests indicated no significant differences between EI and the Control Group. EII was not administered these subtests because of scheduling difficulties.

DISCUSSION

The differences found between the experimental and control groups on the MRT seem to have resulted from the differential treatments given to these groups, since similar effects occurred on the fall, 1969 MRT administrations. Thus, it appears that participation in the perceptual-motor training program did improve the academic readiness of these culturally disadvantaged children. However, the results of the Developmental Test of Visual Perception and the Perceptual-Motor Survey

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indicate that the experimental groups' higher levels of academic readiness were not acceompanied by a parallel improvement in perceptual-motor coordination. It may be possible that the training program achieved an improvement in readiness by increasing the children's facility in attending to and following directions and their understanding of words denoting position in space, time and quantity, and further, that the understanding of these words enabled them to more easily follow directions on the MRT. Hence, the major effect of this program may have resulted from intensive exposure to frequently used verbal concepts, paired with concrete examples and movement.

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